

G. *M. brassicæ*, very common. *M. persicariæ*, two or three specimens; larvæ not so scarce, T.; several, G.; and about half a dozen, C. *Apamea basilinea*, common, G. and C. *A. gemina*, common, both forms exist. *A. leucostigma*, one specimen, G. *A. didyma*, very common and variable. *Miana strigilis*, common. *M. literosa*, not scarce, T.; common, G. and C. *M. bicoloria*, rather scarce, T.; common, G. and C. *Grammesia trigrammica*, common. *Stilbia anomala*, scarce, T.; several, G.; one, C. *Caradrina morpheus*, one specimen, C. *C. taraxaci*, common; very partial to flowers of *Teucrium scorodonia*. In a fairly long series obtained at C., Mr. Barrett failed to find any *alsines*. Mr. Kane says, "not apparently in great numbers;" this is not our experience, as we found it very common. *C. quadripunctata*, common. *Rusina tenebrosa*, common, T.; several, G. and C. (all the melanic variety). *Agrotis vestigialis*, a few near G. *A. suffusa*, common. *A. saucia*, common in the autumn brood. *A. segetum*, very common. *A. lunigera*, four specimens at C., at sugar in a lane about two hundred yards from the sea, with no precipitous cliffs for several miles distant. *A. exclamationis*, very common.

(To be concluded.)

SOME SYSTEMATIC WORK PUBLISHED DURING THE
LAST FIVE YEARS UPON NORTH AMERICAN AU-
CHENORRHYNCHOUS HOMOPTERA (RHYNCHOTA).

BY G. W. KIRKALDY, F.E.S.

1897. H. OSBORN & E. D. BALL, "Contributions to the Hemipterous Fauna of Iowa" (Proc. Iowa Acad. Sci. iv. pp. 172-234, plates 19-26).
1897. E. P. VAN DUZEE, "A Preliminary Review of the North American Delphacidæ" (Bull. Buffalo Soc. Nat. Sci. v. pp. 225-61).
1898. OSBORN & BALL, "Studies of North American Jassoidea" (Proc. Davenport Acad. Nat. Sci. vii. pp. 45-100, plates 1-6); "The Genus *Pediopsis*," and "A Review of the North American Species of *Idiocerus*" (Proc. Davenp. Acad. vii. pp. 111-38).
1898. BALL, "A Review of the Cercopidæ of North America, North of Mexico" (Rep. Iowa Ac. Sci. pp. 204-26).
1900. OSBORN, "The Genus *Scaphoideus*" (Journ. Cinc. Soc. Nat. Hist. xix. pp. 187-209, plates 9, 10).
1901. BALL, "A Review of the Tettigonidæ of North America, North of Mexico" (Proc. Iowa Acad. viii. pp. 35-75, plates 1-7).

Our knowledge of North American Tettigoniidæ (or Jassoidea,

as they are generally called in America), Cercopidæ, and Asiracinae (Delphacidæ) has of late years been considerably increased, chiefly through the labours of Van Duzee, Osborn, Ball, C. F. Baker, C. P. Gillette, and others, to a large extent, no doubt, because these insects are of some economic importance.

Seven papers by three of these authors are now noticed, not because the remaining publications during the past five years are not valuable, but because those chosen are to some extent monographic revisions of difficult and little-known groups.

Van Duzee admits twelve American genera of Delphacidæ,* with over fifty species, which will certainly be greatly extended by future workers. Of these, seven genera and four species are found also in Western Europe. Osborn and Ball have furnished detailed descriptions and valuable figures of *Deltocephalus*, *Pediopsis*, *Idiocerus*, *Agallia* (all European genera); while Osborn has revised *Scaphoideus*, a genus closely allied to *Deltocephalus*, but restricted to America. Ball has also reviewed the Cercopidæ, admitting six genera (four also West European) and sixteen species. The revision of the Tettigonidæ deals with *Tettigonia* and its near allies, *Gypona* being reserved for a future paper. Seven genera are recorded.

These seven papers comprehend some 270 pages, with twenty-three plates, the latter embracing nearly five hundred illustrations. In the attention paid to structural details (especially of the genital segments), and in the broad and philosophical view taken of "variation," the "limits of species," &c., and in the general preparation of the descriptions, I have no hesitation, having regard to the obscurity of most of the groups dealt with, in placing them as a whole in the very front rank of homopterous publications. It may be noted, as some proof of the interest taken in the Homoptera, that these authors have criticised and recriticised one another's writings very freely in the pages of 'Psyche,' 'The Entomological News,' and other publications.

Having regard to the fact that not only a number of genera, but even of species, of the Homoptera are common to America and Europe, the descriptions and detailed figures cannot but be useful to British entomologists. The papers are elucidated by copious analytical tables of genera and species; but though the black illustrations appear to be carefully drawn, coloured figures of some at least of the remarkable variations mentioned would have perhaps enhanced their value. There are many valuable observations and notes on the habits and metamorphoses of American Homoptera, which will be summarized later on in another paper.

The following is a list of the Auchenorrhyncha common to North America and Western Europe; it is probably incomplete

* The nomenclature of the several authors is employed to prevent confusion.

as regards the Membracinae (a subfamily of Tetigoniidæ), *Typhlocyba*, and other genera, as I have none of Goding's or Gillette's later papers before me while writing.

Fam. CERCOPIDÆ.

The genera *Cercopis* (= *Philænus*), *Tomaspis*, *Aphrophora*, *Lepyronia*.

1. *Cercopis spumaria* (Linn.). Eastern Canada; the New England States; (also Japan).

2. *Cercopis lineata* (Linn.). The same American localities as the preceding.

Fam. FULGORIDÆ.

The genera *Stenocranus*, *Kelisia*, *Dicranotropis*, *Stiroma*, *Megamelus*, *Achorotile*, and *Embolophpora* (= *Liburnia*).

3. *Megamelus notula* (Germar). Ontario; New York.

4. *Achorotile albosignata* (Dahlb.). New York.

5. *Embolophpora pellucida* (Fabr.). (The northern Old World to Kamtchkatka). America, from Alaska to New York.

6. *Embolophpora obscurella* (Boheman). New York.

Fam. TETTIGONIIDÆ (= Jassoidea).

Genera *Agallia*, *Alebra*, *Aphrodes* (= *Acocephalus*), *Athysanus*, *Balclutha* (= *Gnathodus*), *Bythoscopus*, *Cicadula*, *Deltocephalus*, *Dikraneura* (= *Dicraneura*), *Dorycephalus*, *Empoasca* (= *Kybos*), *Euacanthus*, *Hecalus*, *Idiocerus*, *Ledra* [doubtful], *Macropsis*, *Parabolocratas*, *Paramesus*, *Pediopsis*, *Penthimia*, *Phlepsius*, *Platymetopius*, *Strongylocephalus*, *Tetigonia* (= *Tettigonia*), *Thamnotettix*, *Typhlocyba*, and *Ulopa*.

SPECIES.

7. *Aphrodes albifrons* (Linn.). Canada, New England States, and Michigan.

8. *A. flavostriata* (Donovan) (= *ricularis*, Germ.). Vermont.

9. *A. fuscofasciata* (Goëze) (= *brunneobifasciata* and *serratulæ*). New Jersey.

10. *A. nervosa* Schranck (*striata*, auctt.). Canada; New York.

11. *Athysanus obsoletus* (Kirschb.). Canada; New York; Iowa.

12. *A. striatula* (Fallén). Iowa.

13. *A. striola* (Fallén). Canada; New York.

14. *Balclutha punctata* (Thunberg). Canada; widely distributed in the United States to Texas.

15. *Cicadula punctifrons* (Fallén). New York; Iowa.

16. *C. sexnotata* (Fallén). Whole of North America.

17. *C. variata* (Fallén). Canada; New York; Michigan.

18. *Deltocephalus ocellaris* (Fallén). Colorado.

19. *Dikraneura flavipennis* (Fallén). Iowa.

20. *Empoasca smaragdula* (Fallén). Almost whole of North America.

21. *Strongylocephalus agrestis* (Fallén). New York; Iowa; Michigan.

A total of thirty-eight genera and twenty-one species.

A few words on the nomenclature of some homopterous genera may not be out of place here.

1. It does not seem to be generally known that Hardy's genus was *Dikraneura* (not *Dicraneura* as usually spelt).

2. In the 'Transactions' of the Entomological Society of London (1894, pp. 411-3), Mr. W. F. Kirby discusses the synonymy of two Tetigoniid genera, viz. *Cephalelus* and *Dorydium*, and concludes that the type of the latter is *lanceolatum*, Burm.

Kirby has fallen into error here through assigning a wrong date for the publication of the rhynchotal portion of Burmeister's 'Handbuch der Entomologie.' This was not 1839, as Kirby states, but 1835,* as far as pp. 1-396 are concerned; pp. 1005-17 were indeed published in 1839. *Cephalelus* was founded in 1832 by Percheron in Guérin's 'Magazin Zool.,' type *C. infumatus*. In 1835 Burmeister ('Handbuch,' ii. p. 106) erected *Dorydium*, type *paradoxum*. In 1838 the same author ('Genera Insectorum') stated that these two genera were founded on the same insect, and transferred the name *Dorydium* to a new species, *lanceolatum*, and this was also noted in 1839 in the table of corrections, &c., appended to vol. ii. of the 'Handbuch' (p. 1006).

The following synonymy will therefore be necessary:—

- (1.) CEPHALELUS, Bercheron, 1832, type *infumatus*, Perch.;
Signoret, 1879, Ann. Soc. Ent. France (5), 9, p. 259.
= *Dorydium*, Burm., 1835, type *paradoxum*, Burm.
- (2.) PARADORYDIUM, n. n., 1901, type *lanceolatum* (Burm.).
= *Dorydium*, Burm., 1838 and 1839, type *lanceolatum*,
Burm.; Signoret, l. c. p. 261; Kirby, 1894, l. c.;
Puton, 1899, Cat. Hémipt. paléarct., ed. 4, p. 93.
- (3.) Gen. nov. ? (type *westwoodi*, F. B. White).
= *Dorydium*, F. B. White; Signoret, 1880, l. c. (5),
10, p. 43.

3. The first palæarctic genus of the Agallini (Bythoscopini) founded was *Agallia*, Curtis (Jan. 1833), type [*consobrina* =] *puncticeps*, Germ. In the same year (July or after) Germar erected *Bythoscopus*, no type being fixed. In 1835 Lewis proposed three genera: (1) *Batracomorphus*, type [*irroratus* =] *microcephala*, Schöff.; (2) *Macropsis*, with two species *virescens* (Fabr.) and *flavicollis* (Linn.); and (3) *Idiocerus*, the application of which is not disputed. He also fixed *lanio* (Linn.) as the type of *Bythoscopus*, Germ. In 1838 Burmeister ('Gen. Insect.') divided *Bythoscopus* into four subgenera: (1) *Bythoscopus*, not that of Germar, restricted by Lewis; (2) *Idiocerus*; (3) *Oncopsis*, Burm.

* See, amongst other contemporary references, Burmeister, 1836, Arch. Naturg. ii. pt. 2.

= part of *Macropsis*, Lew., in which is included *Macropsis flavicollis* (Linn.), Lew.; and (4) *Pediopsis*, Burm. = part of *Macropsis*, Lew., with type *Bythoscopus tiliæ*, Germ.* As *lanio* is scarcely to be separated generically from *microcephala*, Schöff., *Batracomorphus* becomes a synonym of *Bythoscopus*, Germ., Lew. In 1843 Amyot and Serville ('Hémiptères') named *lanio* as the type of *Macropsis*, notwithstanding that it did not conform to Lewis's description, and had already been fixed as type of *Bythoscopus* by Lewis. The type of *Macropsis* has, in fact, never been properly fixed. It must be either (1) *flavicollis* or (2) *virescens*. I now fix it as the former as least objectionable. The name *Macropsis*, Lewis, cannot be used for *lanio* and its congeners, because it was, as stated above, founded for two species only, neither of which belongs to the same genus as *lanio*. The synonymy will then be:—

- (1.) BYTHOSCOPIUS, Germ., 1833, type *lanio* (Linn.), Lewis.
 = *Batracomorphus*, Lewis, 1835, type [*irroratus*,
 Lew. =] *microcephala*, Schöff.
 = *Macropsis*, auctt.
- (2.) MACROPSIS, Lewis, type *flavicollis* (Linn.), Kirk.
 = *Oncopsis*, Burm., 1838, type *tiliæ* (Germ.), Burm.
 = *Bythoscopus*, auctt.

4. Van Duzee adopts the generic name *Liburnia*, Stål, for *pellucida*, &c. He is certainly correct in not employing *Delphax*, Fabr., as has Puton in the fourth edition of the Catalogue of Palæartic Rhynchota.

The type of *Delphax* must be either *Cicada clavicornis*, Fabr., or *Cicada crassicornis*, Fabr., for these two were the only species included in the genus at its foundation in 1798. The former was fixed as the type of *Asiraca*, Latreille (1796), in 1810. I have not yet been able to trace a proper type-fixation for *Delphax*. *Liburnia*, Stål, 1866, is preoccupied by *Embolophora*, Stål, 1853 (not *Embolophora*, as Stål himself writes it later), and the latter name should be used. The somewhat complicated synonymy therefore stands:—

- (1.) ASIRACA, Latr., 1796, type *clavicornis* (Fabr.), Latr., 1810.
 = ? *Delphax*, Fabr., 1798 (typical).
- (2.) ARÆOPUS, Spinola, 1839, type *crassicornis* (Fabr.), Spin.
 = ? *Delphax*, Fabr. 1798 (typical).
- (3.) EMBOLOPHORA, Stål, 1853,
 = *Liburnia*, Stål, 1866.
 = *Delphax*, mod. auctt.

* "Ab omnibus speciebus hujusce sectionis hæc optime cum caractere subgeneris congruit."—Burm. *l.c.*